**Second Homework Assignment**

**Due Wed Sept 17th**

**Instructions**

C++ type long will be sufficient to do this assignment.

**1)** For positive integers a, b, and c, let (ab)%c denote ab reduced modulo c to the range {0, 1, 2, …, c – 1}.

Use the recursive version of the discrete exponential f(a, b, c) = (ab)%c to compute

(a) y = (2252)%1009.

**y = \_\_\_\_\_\_1008\_\_\_\_\_\_\_\_\_\_**

(b) y = (2504)%1009.

y = \_\_\_\_1\_\_\_\_\_\_

**(b)** y = (21008)%1009.

**y = \_\_\_\_\_1\_\_\_\_\_\_\_\_\_**

**2) (a)** Using the iterative version of f(a, b, c) compute f(2, n – 1, n) for 3 < n < 7919. (Do not print these numbers out!)

**(b)** Modify your program so that it counts the number of times N that f(2, n – 1, n) is equal to 1.

**N = \_\_\_\_\_\_1017\_\_\_\_\_\_\_\_\_\_**

**(c)** Compare N + 1 to 7919/loge(7919) = \_\_\_\_\_\_\_\_N+1 > 7919/loge(7919)\_\_\_\_\_\_\_\_\_\_.

Remark: N+1 > π(7919), and probably N + 1 ≈ π(7919).